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| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/617,871   | 07/14/2003  | Makoto Arai          | 32213M022           | 3835             |
| 441  | 7590        | 02/09/2005           | EXAMINER            |                  |
| SMITH, GAMBRELL & RUSSELL, LLP<br>1850 M STREET, N.W., SUITE 800<br>WASHINGTON, DC 20036 |             |                      | PARKER, KENNETH     |                  |
|  |             |                      | ART UNIT            | PAPER NUMBER     |
|  |             |                      | 2871                |                  |

DATE MAILED: 02/09/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/617,871

Applicant(s)

ARAI, MAKOTO

Examiner

Kenneth A Parker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,2,5,7,8,10 and 13-15 is/are rejected.
- 7) ☒ Claim(s) 3,4,6,9,11 and 12 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

### **DETAILED ACTION**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claims 1-2, 5, 7-8, 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasagawa et al 5640216 in view of Ohnuma et al 5671030, Fijioaka et al 6850308, Shibahara et al 2001117103 , Shinsenji et al 10-301096, Miyazaki et al 09-73093, Tsuchida et al 11-242229, Onaka et al 2002-148639, Ishihara et al 05-241165, Nakamura et al 04-030123.**

Claim 1 pertains to a liquid crystal display panel, in which a liquid crystal layer is held between a first substrate and a second substrate having electrodes each, and drive electrode groups for individually driving the electrodes of the first substrate and the electrodes of the second substrate are arranged on one side of, or one and the opposite sides of, the first substrate, comprising:

a seal portion bonding the first and second substrates together;  
connecting wires set on a side perpendicular to the side on which drive electrode groups are arranged and connecting the electrodes and the drive electrode groups;  
and an image display section located inside the seal portion and a image non-display section located between the image display section and the seal portion,  
wherein the connecting wires are arranged in the image non-display section and having a thickness greater than that of the electrodes in the image display section, and the distance between the first and second substrates in the image non-display section is substantially equal to the distance between the first and second substrates in the image display section.

The primary reference Hasagawa shows the electrode structure (see figures 19-20a,b,c, which shows an electrode structure with a slant wiring section with multiple layers in the seal (see figure 19, the signal wiring includes the gate layer in the non-display portion with in the seal- shown more clearly in figure 11a). The reference, however, lacks the substrates having the same gap explicitly stated (although shown) in the peripheral region, or larger spacers there or the same spacers and some layers making the thickness the same. It was notoriously well known to employ spacers of

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different thicknesses or the same thickness with spacing layers to make the gap the same to prevent problems, with all of the secondary references listed as evidence of this. Ohnuma discusses it through out the docuement, in particular see column 3, lines 15 –25; Shibahara et al 2001117103 (see abstract), Shinsenji et al 10-301096 (see abstract) , Miyazaki et al 09-73093 ( shows different height and black matrix), Tsuchida et al 11-242229 (see abstract), Onaka et al 2002-148639 (see abstract), Ishihara et al 05-241165 (see abstract), Nakamura et al 04-030123 (see abstract).

Therefore, one of ordinary skill would have known in the device of the primary reference to make the distance uniform to prevent defects or as a desired end goal as evidenced by the secondary references, and further one would have been motivated to do this through different size spacers or spacers with an additional layer partially closing the gap as evidenced by the secondary references, for the benefit of keeping the spacing uniform.

The references shows the feature added to claim 1 for claim 7 of a shielding layer located in the image non-display section, and the references shows the feature added to claim 7 for claim 8 of the color filter layer thicker than the shielding layer and arranged in the image display section. The references shows the feature added to 2 of each said connecting wire includes a low-reflection metal layer, as the layers includes chrome, the metal in applicants low reflection metal layer. The reference shows for claim 14 said drive electrode groups are mounted directly with an electrode drive IC, as the electrodes are mounted directly (they are on the substrate), and they contain associated drivers (see figures 24 and 26).

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Regarding the claim 5 is a color filter layer arranged in the image display section and spacers arranged between the first and second substrates, the diameter of the spacers arranged in the image display section being smaller than that of the spacers arranged in the image non-display section, see above discussion of smaller spacer in the display area as taught by the secondary references for creating a uniform thickness (particularly in view of Ohmura).

**Claims 2 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasagawa et al 5640216, Ohnuma et al 5671030, Fijioka et al 6850308, Shibahara et al 2001117103 , Shinsenji et al 10-301096, Miyazaki et al 09-73093, Tsuchida et al 11-242229, Onaka et al 2002-148639, Ishihara et al 05-241165, and Nakamura et al 04-030123 as applied above, and further in view of Ono et al 6667778.**

Added to claim 2,3,9 or 12 for claim 15 is said low-reflection metal layer is a two-layer structure formed of a chromic oxide layer and a chromium layer, which is lacking from Hasagawa et al. Ono et al indicates that "additionally, the Cr film formed by sputtering is used as the gate line GL and the light-blocking film SKD in this embodiment; however, a multi-layered light-blocking structure with reduced reflection may be used, for which chromium oxide is initially formed on the substrate and then the Cr film is formed by consecutive sputtering." Therefore it would have been obvious to

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one of ordinary skill, in the device of the primary reference as modified above, to employ a chromium/chromium oxide stack for the benefits of reduced reflection.

**Claims 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hasagawa et al 5640216, Ohnuma et al 5671030, Fijioka et al 6850308, Shibahara et al 2001117103 , Shinsenji et al 10-301096, Miyazaki et al 09-73093, Tsuchida et al 11-242229, Onaka et al 2002-148639, Ishihara et al 05-241165, and Nakamura et al 04-030123 as applied above, and further in view of Kitahara 4733948.**

Added to claim 7 for claim 10 is a color filter layer substantially as thick as the shielding layer and arranged in the image display section and spacers arranged between the first and second substrates, the diameter of the spacers arranged in the image display section being greater than that of the spacers arranged in the image non-display section. Added to claim 7 for claim 13 is said shielding layer is formed of black resin. Lacking is the black matrix being a black resin and the same thickness as the color filters. Kitahara shows a color filter board as such indicating that it is thinner and simplifies construction (column 1, lines 38-45). Therefore it would have been obvious to one of ordinary skill, in the device of the primary reference as modified above, to employ the filter board of Kihahara for the above stated benefits. Regarding the the diameter of the spacers arranged in the image display section being smaller than that of the spacers arranged in the image non-display section, see above discussion of smaller spacer in

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the display area as taught by the secondary references for creating a uniform thickness (particularly in view of Ohmura).

***Allowable Subject Matter***

**Claims 3-4, 6, 9, 11-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth A Parker whose telephone number is 571-272-2298. The examiner can normally be reached on M-F 10:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on 571-272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Kenneth A Parker  
Primary Examiner  
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